1996

Beginnings: SEAFDEC/AQD, CFRM, and Malalison Island

Aquaculture Department, Southeast Asian Fisheries Development Center

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Beginnings:

In 1991, SEAFDEC/AQD ventured into R&D on community fishery resources management (CFRM) after 18 years of developing aquaculture technologies. Why?

Perhaps the singular reason is then AQD Chief Dr. Flor Lacanilao. He felt that AQD should get involved in a development-oriented research focusing on the issues of poverty and marine resource degradation as environmental concerns impact on aquaculture as well. Broodstock and fry of important aquaculture commodities, for instance, are sourced from the natural stock.

The idea was to develop a resource management scheme that would involve fisherfolk. But CFRM can be successful only if the fisherfolk are given rights over the resources in their area. TURF or territorial-use rights in fisheries is a concept that has a 100-year history in Japan, and is being tested in other southeast Asian countries.

Dr. Lacanilao got funding from the International Development Research Center (IDRC) of Canada and the CFRM project was on. Malalison Island became the "laboratory" site (see map on page 8). The long-term view is to replicate CFRM in other coastal communities in the country.

Why CFRM, why TURF?

In his article on *Giving small-scale fishermen territorial rights over their waters* published in **Diliman Review** (Vol. 36, No. 2, 1988), Dr. Lacanilao writes about the background, problems, causes, and recommendations pertinent to CFRM and TURF in the Philippines. Excerpts:

Some statistics

- There are about 700,000 small-scale fishers and nearly 500,000 fishing boats in the Philippines. If each fisher provides occupation to 2 or 3 shore-based workers, the total labor force directly engaged in small-scale fisher-

SEAFDEC/AQD, CFRM, and Malalison Island

ies consists of 1.8 million workers. Adding their families (average size, 5 members), the municipal fisheries support nearly 9 million persons. They live in coastal areas that constitute two-thirds of the country's 1,500 municipalities. The country has a 34,500-kilometer shoreline.

- In 1987, coastal fishers produced half (49%) of the total national fish production of 2.14 million tons valued at P42 billion and 5.3% of gross national product. Yet the fisherfolk has remained one of the poorest sectors of the country.

- Fish harvests have fallen below the national demand which is estimated at 40 kg per year per capita consumption. It has increased by only 1.4% in the last five years, against the population growth rate of 2.5%. Although commercial fisheries and aquaculture each increased by 12%, small-scale fisheries catch decreased by 8%. This setback indicates that coastal fishery resources are precariously depleted.

Problems and causes

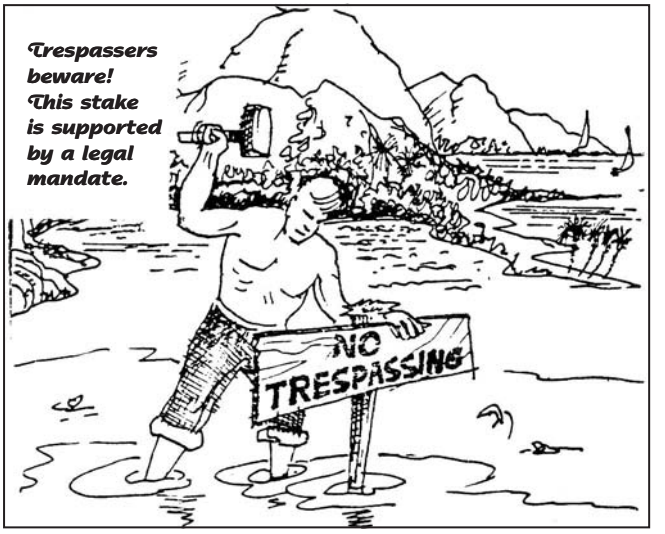
The challenge now is meeting the future fish demand with the present condition of the resource base and the rapid population growth. But the two major problems in Philippine fisheries today include:

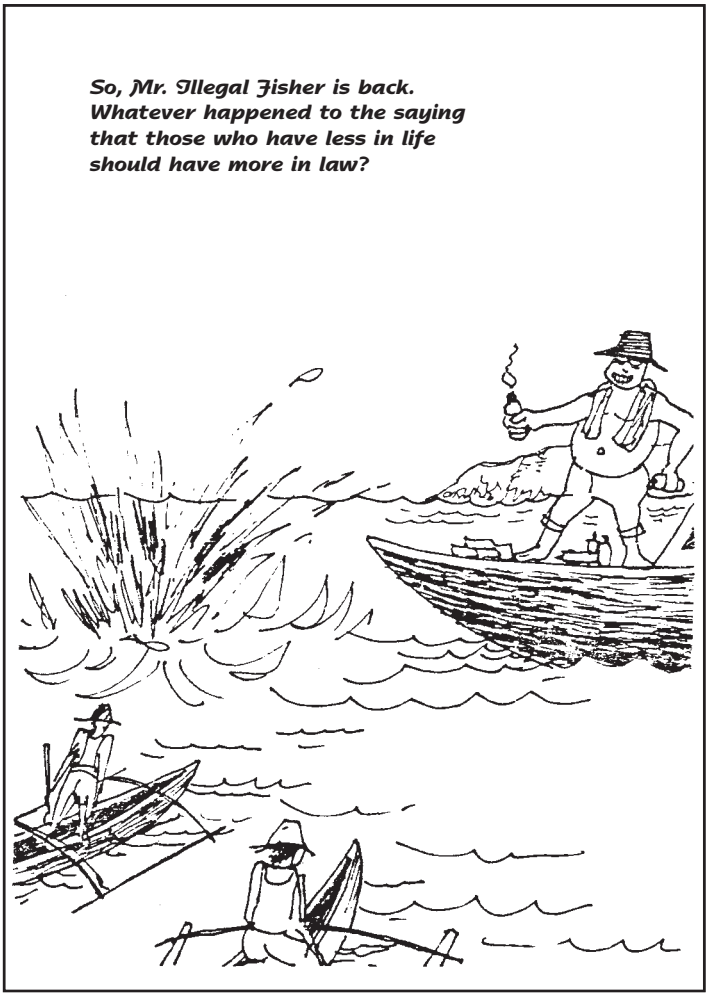
- obvious depletion of coastal fish resources and

- rampant practice of illegal fishing

In 1905, the annual fish production of a small-scale fisher was 4.2 tons. Today this has dwindled to 1.6 tons, and fishers are driven to use dynamite, poison, and other destructive and illegal fishing gears to "augment" poor catch. Compounding this desperate situation is the invasion of municipal waters by commercial fishing boats which take away a large portion of the harvest properly belonging to small-scale fishers. The gears used by commercial fishers also do not spare fish juveniles and habitats. Commercial fishers are also accused of destroying the gill nets of small-scale fishers.

Are the small-scale fishers to blame? Even granting that abusive fishing methods destroy coral reefs, the small-scale fisher believes that he is not a major factor in the widespread depletion of wild fish stocks. Illegal fishing by small fishers, at the scale it is conducted, is not the principal cause of depletion of nearshore fish. Rather, the loss of coastal productivity has driven them to unorthodox fishing methods. The practice is wrong, but to condemn them mercilessly is unfair because to them the plain issue is survival. The real culprits are the large-scale destroyers of the coastal ecosystems who demolish coral reefs, mangroves, and estuarine areas.





Today, only 5% of the country's once extensive coral reefs (2.7 million hectares) are in good condition. Siltation from forest denudation is the major culprit. At their ideal condition, coral reefs can support as much as two tons of fish per hectare. Mangroves, on the other hand, provide nutrients to marine fish and are indispensable as breeding and nursery grounds. Most of them are now gone, converted into commercial fishponds where fish production cannot match the quantity of fish lost from capture fisheries. The estuarine areas are in the same predicament, degraded and polluted by industrial and agricultural wastes.

In seeing these problems, our first reaction would be to blame the failure of law enforcement. We have many well-intentioned environmental laws and regulations, but the disturbing question is: Are they effective or implementable? This is the issue considered in the following recommendations.

Recommendations

Coast guard authorities, for example, say they do not have enough facilities and personnel to patrol the extensive Philippine shoreline. The usual solution is to increase surveillance capability. Another is to hike the penalties for violations of fishery laws.

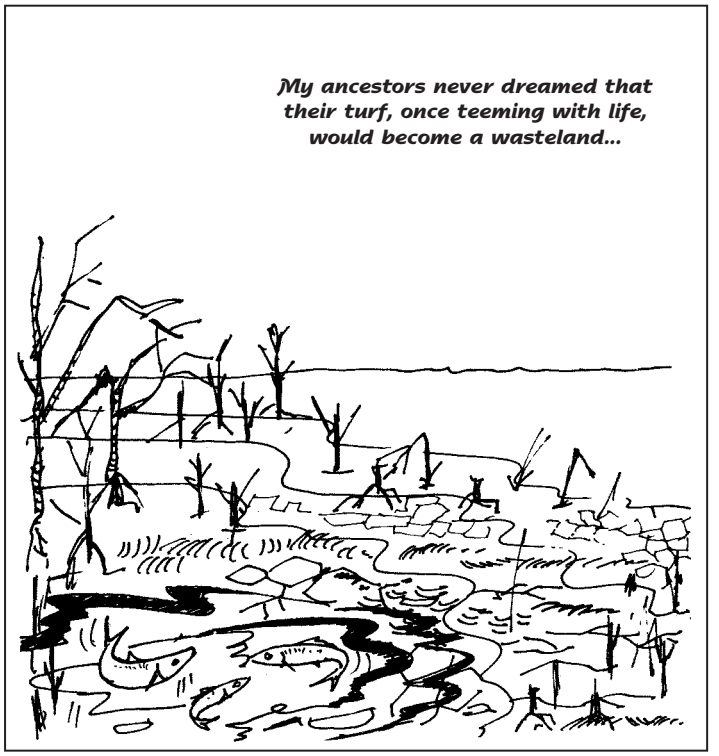
Long experience has shown that fishery regulations can be circumvented by influential people and vested interest groups. For instance, among the past violators of fishery laws in Laguna de Bay were high government officials and top military officers. Their victims were thousands of small-scale fishermen whose traditional fishing ground and fish catch were drastically reduced with the large-scale construction of illegal fishpens.

Another recent case is the order from higher authorities rescinding a decision of an environmental board to close down a Marinduque mining firm because it was polluting the traditional fishing ground of Calancan Bay. There are two sides in this issue, but it appears that the short-term economic rather than the long-term ecological consideration has again won.

Existing laws and regulations are therefore saddled with certain inherent weaknesses, or admit too much government intervention that defeats the goal of resource management. Thus, alternative measures are necessary to reshape our perception of the socio-economic and political dimensions of fishery activities. Strongly recommended for serious consideration by the Department of Agriculture and the Philippine Congress is granting small-scale fishers territorial rights over municipal waters.

The TURF concept revolves around the organization of coastal folk into fishing associations that would then be given exclusive legal rights to manage the fishing grounds in their locality. In effect, fishing operations will be controlled on shared basis by the municipal fishers themselves. They can exclude outsiders or drive off intruders to protect their territorial rights.

The scheme, therefore, promotes the virtue



of self-control, manifested by the adoption of community-imposed regulations, such as gear restrictions, seasonal and area closures, and catch quotas. This idea is not alien to the cultural make-up of fishing villages. The environment for social cooperation has always been present because of long familiarity among the residents, blood relationship, and other cultural ties. Acquisition of proprietary rights by fishers over their traditional source of livelihood would further cement the community spirit that already exists.

The political and administrative aspects of allowing fishers' associations, and not the government, to manage coastal fishery resources should be seriously considered. There is a strong opinion that management and regulatory measures have a better chance of success if these are adopted and implemented by fishers themselves. Moreover, the government stands to gain in terms of lesser administrative and law-enforcement costs.

The association should be empowered to determine the limits of the territorial area that it shall manage. Since this should be based on the depth and area of desirable shelf, the distance of the boundary from the shoreline will naturally vary for different fishing communities.

On humanitarian grounds, it is moral to give small-scale fishers exclusive control over fishery resources in their area. In most places, fishing is their only means of livelihood and survival.

Artisanal fishers are tied to their resource base by traditional and cultural attachments which are hard to break. On the other hand, the big fishing enterprises can easily abandon or sell out their interests and reinvest in other business with a minimum of personal sacrifice.

The grant of territorial rights to small-scale fishers is not new. It has been adopted and practiced in Japan for 100 years. Prototypes can also be found in Brazil, Sri Lanka, the Ivory Coast, and Papua New Guinea. Some encounter problems and constraints, but each model should be studied to gain useful lessons and insights. The Philippines can devise and innovate methods suited under its particular socioeconomic, cultural, and political systems.

A key lesson in the failure of some attempts in granting autonomy to small-scale fishers is the inability of fishers' cooperatives to operate successfully. In most cases, this is due to lack of government support, at least during the cooperative's formative stage. As Dr. Wilfredo Cruz of the University of the Philippines in Los Baños observed: "Some of our local experiments in fishing cooperatives had nothing but a few tax exemptions ... cooperatives are even expected to compete with extremely well-funded and well-organized commercial interests. Failure is easily predicted."

TURF must also consider the biological aspect. Fishing must be limited to the productivity of the natural stock, if and when it is restored.

While the marine ecosystem is regenerating, coastal fishers can engage in alternative occupations, again, with initial help from the local or national government. A promising solution is the implementation of a nationwide seafarming program which can provide gainful employment in coastal areas.

The Department of Agriculture has also recommended other alternative job opportuni-

ties. For Iloilo alone, these include mango processing, wrapping paper production from rice straw, coffee processing, and cultivation of crops such as peanut, mungbean, cotton, and watermelon.

Finally, the problems of coastal fishing communities must include the issue of birth control. Population pressure is admittedly a major cause in the degradation of natural resources. The government's family planning program should thus be equally pursued aggressively in coastal communities as elsewhere.

Revision of fishery laws and new legislations designed to help small-scale fishers is imperative. Granting them territorial rights over municipal water is necessary for acquiring the right quality of life, self-respect, and ability to contribute to national goals.

(The Local Government Code enacted in 1991 gives municipalities exclusive authority to grant fishery privileges. Municipal councils can now decide on ordinances regarding TURFs. - *Eds.)*

Why Malalison?

SEAFDEC/AQD first identified five candidate sites for its CFRM project. These included Concepcion and San Dionisio in the province of Iloilo, Culasi and San Jose in the province of Antique, and Nueva Valencia in the sub-province of Guimaras. These are all easily accessible from AQD's Tigbauan Main Station.

Malalison was selected based on socioeconomic and biophysical criteria. Socioeconomic criteria included income and dependence on fishing, (destructive) fishing practices, use of credit for fishing activities, potential for alternative livelihood, and presence of a non-government organization in the locality. The biophysical criteria evaluated were the presence of live coral cover, other hard substrate, seagrass beds, mangroves, water 10-30 meters deep, and protection from the southwest monsoon. The candidate sites were scored 0 or 100 points.

The CFRM project integrates biological studies with economics, sociology, enterprise management, public administration, and engineering to accomplish community-based resource management. Progress in these studies has been reported elsewhere (see reference list on page 2, this issue).

Once upon a time ...

Malalison is part of the greater whole that is the town of Culasi. It is one of Culasi's 44 baranggays, and can be reached by a 20-minute motorboat ride from the mainland. The island is located 3 kilometers northwest of the mainland municipality of Culasi. Malalison has to deal with the other users of coastal resources, and the history of Culasi's people is significant. Culasi history also reflects the numerous influences that impacted strongly on Philippine culture, from the Spaniards to the Americans.

The name Culasi originated from a big tree that grow on riverbanks. Culasi is primarily an agricultural community. The waters off the islands of Malalison, Batbatan, and Maniguin is a rich fishing ground. Along the coasts of mainland Culasi, plenty of milkfish fry are caught from February to May. Agricultural crops produced are diverse, and include rice, corn, sugar cane, copra, fruits, vegetables, and root crops. Agricultural or arable land is about 23,090 hectares. These are fertile, well-irrigated, and produce three (rice) crops a year.

Although considered a fifth class municipality (population, 23,864), Culasi is a fast-growing community. There is a 50-bed hospital, 12 elementary schools, two high schools, one vocational school, and a community college offering technical courses. Two companies have buses plying 14 trips to and from Culasi everyday.

Residents describe Culasi as a "rock of determination to rise in greatness ... (and which) has valiantly withstood the trials and tribulations of history". The majestic Madja-as mountain stands as a silent sentinel.

According to the official town account (taken from Culasi's 260th foundation day souvenir program, 1995), Don Juan Uguid and his group made the first settlement in 1735 near a river. People began moving to hilly parts when death was ordered if they refuse to pay taxes to Don Juan Lomboon. The second settlement did not prosper, and Capitan Carpio moved the settlement back to the lowlands in 1780. This settlement was also a safe refuge from Moros that raided settlements.

Culasi liberated itself from Spanish authorities in 1898. A group of Filipino soldiers serving in the Spanish Army (called *tiradores)* mounted an open rebellion under Don Juan Xavier. They

massacred the Spanish soldiers garrisoned in a Catholic convent; the survivors left town. In Philippine history, 1898 marked the first successful rebellion against Spain which ruled the country for 300 years. Spain lost several colonies to America.

The Americans took over Culasi in 1900. Until the outbreak of World War II, the American influence has shown marked effects on the educational, political, economic, and socio-cultural life of the town.

Then the Japanese came. Their scorched-earth policy destroyed Culasi. Houses and public buildings were burned, and the people escaped to the hills. Practically all able-bodied men joined the guerillas. USAFFE Army Captain Silverio Cadiao and his men engaged the Japanese army in Timogan Hills, enabling evacuees to escape.

When the war ended, the town started rehabilitating itself.

The 54-hectare Malalison island as seen from the mainland.

Two of AQD's CFRM researchers taking note of the catch landed in the island.

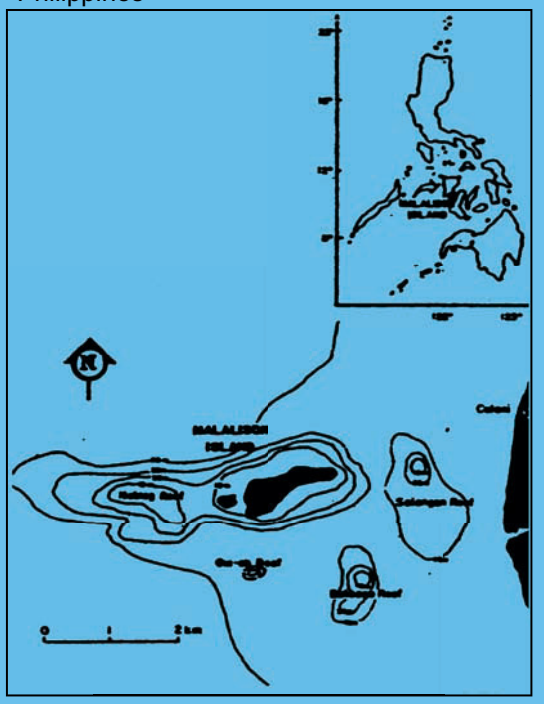
AQD scientist Rene Agbayani and Editor Julie Lagoc in front AQD's CFRM field office-laboratory

Majestic Madja-as

The Madja-as mountain stands in the background of Culasi. You can clearly see the numerous waterfalls during early mornings in Malalison Island. Visitors often describe these falls as *puting buhok ng matanda* (an old person's gray hairs). But the legend of Madja-as is a beautiful bedtime story. And a story for another time.

Malalison Island

AQD's CFRM "laboratory" village is found 11°25'N and 122°1'E off the northwest coast of Panay Island in west central Philippines --



Viewpoints

The AFN staff interviewed representative members of Malalison. We talked with the previous and present village heads, the president of the fishermen association, the chair of the women's committee, a store-keeper, a successful couple, a schoolkid, and a primary grade teacher -

CFRM hinges on the formation of a strong and sustainable fishers' association," explains AQD scientist Renato Agbayani who took over the CFRM project when Dr. Flor Lacanilao's term as AQD Chief ended in 1992.

Agbayani reported that the Fishermen's Association of Malalison Island (FAMI) was organized in 1991 with the support of the Culasi municipal government. The CFRM team tapped PROCESS Foundation, a non-government organization, to facilitate community organizing and the training of FAMI members. To advise FAMI, a Resource Management Committee has been created. The committee is represented by different fisher groups (hook-and-line, net, and spear), the local government units and concerned agencies, AQD, and PROCESS Foundation. FAMI is expected to:

- improve enforcement of fishery laws through self-regulation and vigilance
- stop illegal fishing
- develop skills in alternative livelihood, and
- improve access to appropriate technology.

FAMI assesses its plans and accomplishments in yearly workshops. Members note their strengths and weaknesses, and the opportunities of, and threats to, the CFRM project. (More on FAMI on pages 22-25, this issue.)

Ricardo Doroteo, the present *Barangay Captain,* tells Editor Julie Lagoc: "Now that our island has organized a fishermen's association, plans are easier to implement. SEAFDEC is a blessing. And the PROCESS NGO, too. It is as if we could see something beyond our usual day-to-day existence. That means living toward a better life. Before, the *kanya-kanya* attitude (loosely translated as "to each man, his own") was strong. Now we are learning a lot through meetings and seminars."

The demographics for progress are hardly encouraging. The CFRM report notes that the AQD census in 1991 showed 74 households with an average of 5-6 members. About 72% of these households lived below the poverty level of P2,500 per month (US$1=P25 as of 1991). Income from fishing accounted for 60-100% of the total income of 65% of the households. About 49% of the households had 1-2 working members, and another 42% had 3-4. Among the

household heads, 84% reported fishing and related occupation (net mending, fish vending, boat making) as their main livelihood. The rest of the household heads were engaged in swine-raising, construction work, coconut-lumber making, or farming.

An agro-fishery village transect was prepared by AQD with rapid rural appraisal techniques to determine the land and marine resources, economic activities, agricultural and fishery products, problems, and opportunities in Malalison. The village has coral reefs, lowland rice fields, upland area, and nearshore resources. Some of the economic opportunities identified included:

- the capture of ornamental fishes from the coral reefs
- vegetable farming and salt-making near the rice fields
- planting of fruit trees in the uplands
- establishment of a cooperative-managed consumer store in the village proper, and
- seaweed farming nearshore

The CFRM report also notes that in 1992, the waters off Malalison supported a population of 6,820 in 1,364 households in 16 coastal barangays in Culasi and nearby Batbatan Island. Commercial (large-scale) fishers from other provinces have also encroached on the waters off Malalison to the disadvantage of the municipal (small-scale) fishers. Of the 74 households in Malalison, 37% have non-motorized boats and 22% own motorized boats. Hook-and-line is the most common fishing gear, followed by spears and nets. Women and children gather mollusks, sea urchins, sea cucumbers, and other reef products. Because of the monsoon winds in July-November, fishing is seasonal in Malalison, particularly among the fishers using spears and hook-and-line.

Further, the living marine resources in Malalison were assessed during 1991-1994. Many species of mollusks, echinoderms, and other invertebrates are found in Malalison, and many are used as food or sold for additional income. Five species of seagrasses and 74 species of macrobenthic algae were recorded around Malalison. The biomass of these benthic plants was highest in March-May. (See also page 31.)

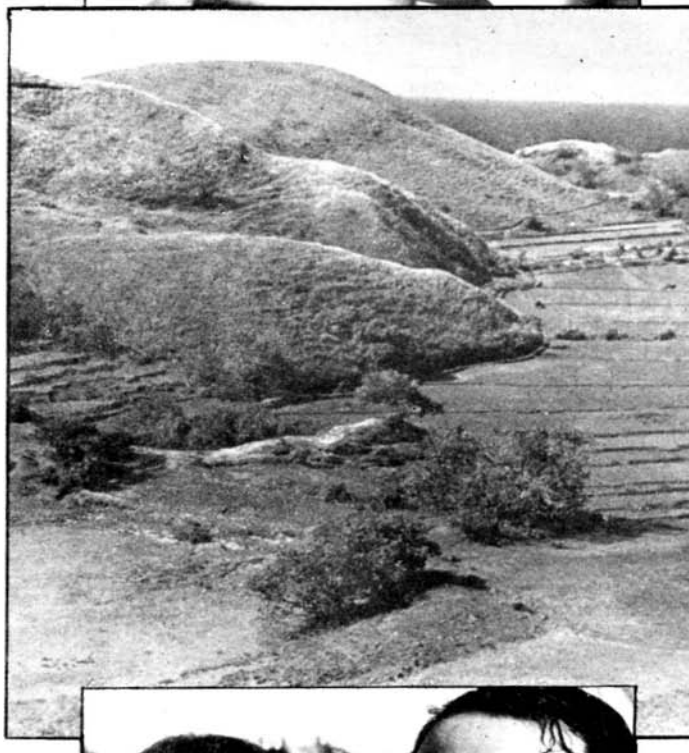
AQD researcher Edgar Amar monitored fish landings in Malalison for one year. He estimated fish yield from coral reefs to be 5.8 tons per square kilometer per year. This yield is low and is similar to overexploited reefs in the Philippines and elsewhere. He noted that live coral cover

only averages 35% in Malalison. Reef degradation, high fishing effort, low yields, and the poverty of the fishing community suggest Malthusian overfishing, i.e., inadequate catch compels fishermen to use efficient but habitat-destructive fishing methods. "CFRM can protect and sustain the fishery and improve Malalison's economy," says Amar. The CFRM project can also take the fishing pressure off Malalison's aquatic resources. PROCESS Foundation has already several alternative livelihood schemes in place. (See also page 16.)

"Do you know that our island is more beautiful than Apo?," Ricardo asks. "I together with some FAMI officers went on a field trip to Apo Island and learned that it is earning big: P600 per cottage, P100 per scuba diving, P30 per snorkeling. Malalison has bright prospects for ecotourism and we will go into this." (See pages 22-25 for related issues.)

The faces of Malalison - 1

Photographs by Sid Tendencia and Eric Gasataya



Clockwise:

A medical and dental team from mainland Culasi visits the island once a year.

Youth culture? Malalison is a young community, and can dance to the latest craze in the country, the 1995 hit "Macarena." Most of the residents' radio sets are tuned in to Metro Manila because broadcast is clearer than Iloilo-based stations.

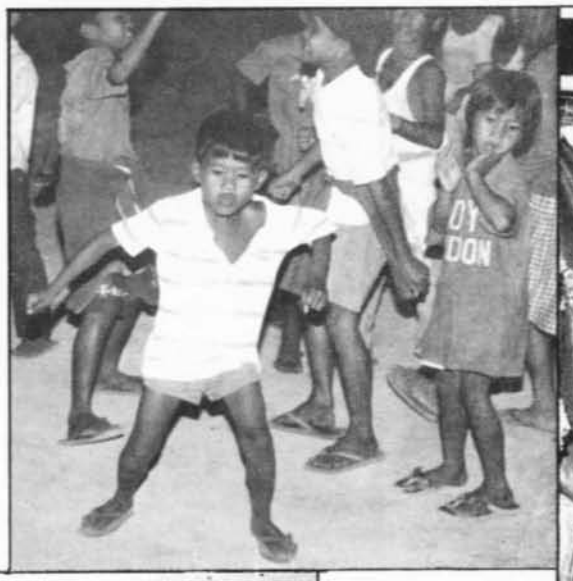
The government is promoting the Philippines as "fiesta islands." Malalison is no exception, crowning a beauty queen and sponsoring a basketball tournament every year.

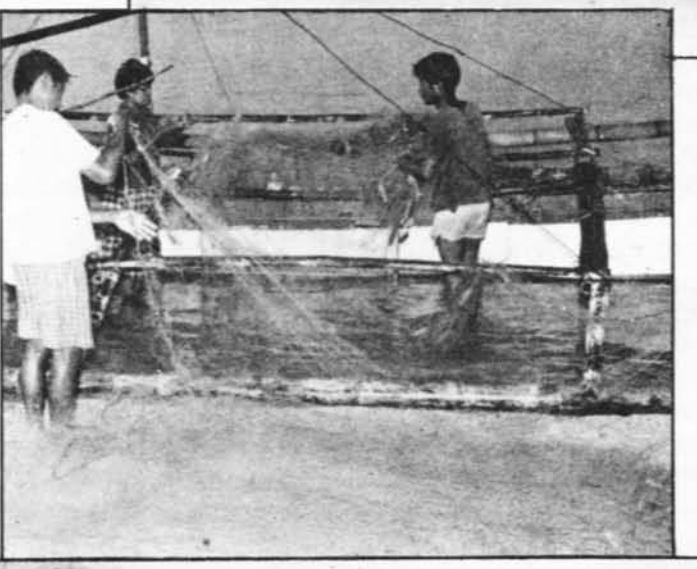
An AQD researcher describes Malalison as having "multi-species and multi-gear fisheries." The variety of gear may reflect diversity of coral reef species and inter-island influences. Alas, it is also "intensely" fished. There are 34 fishers per km^2 of reef; other tropical countries have only 10 fishers per km^2.

When the wind shifts ... fishing fails as a dependable means of livelihood. Storms visit Malalison, too - thus the need for alternative sources of income.

Fora and her father Alex of the CFRM project. Named after the Malalison Forum, she was born when this was held in 1995.

The island offers a good hike for visitors. The view is breathtaking at the mountaintop.





Our waters, our rights!

Patricia Doroteo, 56, chairs the Women's Committee in Malalison. Her husband Gerardo, 59, is a typical Malalison fisherman doing *lambat* (netfishing) and *pana* (spearfishing) -- "the only job left to the males in the island," Patricia says. She considers herself a typical Filipino mother, doing all she could to give their children a higher education she and her husband were unable to attain. Son Ricardo, the *Baranggay Captain,* took up Geodetic Engineering (under board). A daughter is finishing A.B. English while another is a secretarial graduate.

Women slightly dominate the population (about 52%), and a training program has been laid out for them. The capability building seminar conceptualized by PROCESS Foundation, the NGO that organized the island community, seeks to equip women with advanced knowledge, skills and orientation that will lead to their effective role in family and community affairs.

In the Philippines, women traditionally take care of the children and the household; the men provides the "bread and butter." But a survey made by the Swedish International Development Authority and the Food and Agriculture Organization in 1991 notes that women work more and play less than men:

Activity	***Average hours spent per day***	
	Men	***Women***
Domestic duties	0.5	4.5
Agriculture	2.5	2.0
Leisure	5.0	3.0

The same holds true for Malalison. A SEAFDEC study in 1992-93 notes that women work 4 hours at home and 6 hours in income-generating activities. The men, on the other hand, spend 2 hours in house work and 7 hours in fishing and other livelihood.

"Training woke us up, made us realize our obligations. We are equal with the menfolk. I share work with the other board of directors. We have the usual household chores, we mend and assemble fishing nets, we do hog-fattening, but we need other livelihood projects," Patricia explained.

She also considers population explosion a big problem. "Families with 9, 10, or 12 children are common. I have six of my own and 11 grandchildren. Ricardo (the *Barangay Captain* who is 36) is my eldest. In Malalison, a 20-year old girl still unmarried is already regarded an old maid."

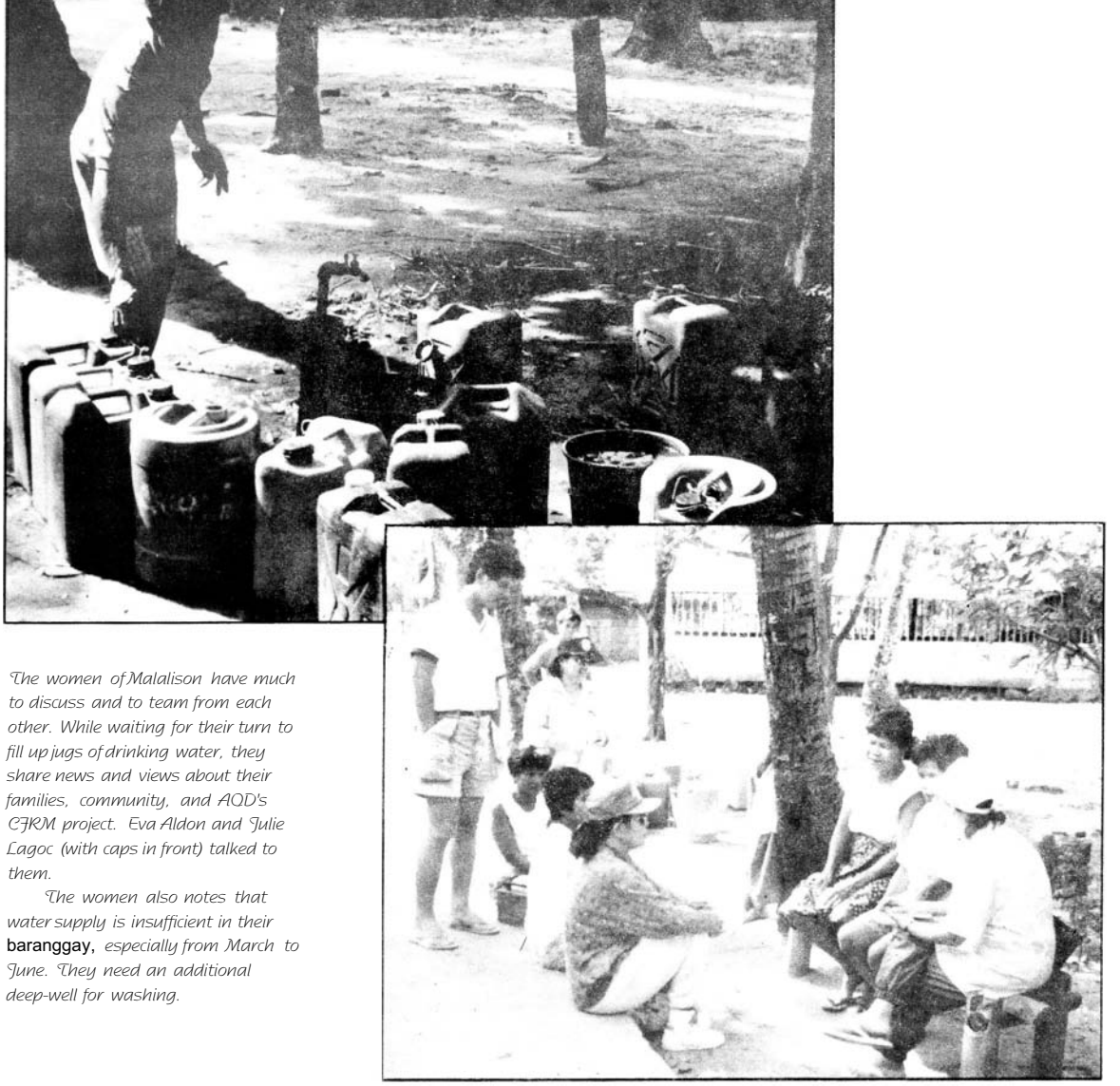
Malalison has a young population as noted in the 1991 SEAFDEC/AQD survey - 68% were younger than 30 years, 19% were 30-50 years old, and only 13% were older than 50. The population increased from 431 in 74 households in 1991 to 435 households in December 1994, a 3% annual growth rate. This is higher than the national growth rate of 2.1% estimated by the government's census and statistics office.

"High population growth is both an effect and a cause of poverty," explains AQD scientist Renato Agbayani. He and his CFRM team has built a causal model of poverty in Malalison. The model has been discussed in several meetings in and outside Malalison to reach a consensus.

The direct causes of poverty in Malalison are:

- the degraded condition of marine and land resources
- limited livelihood opportunities
- low educational attainment of the island residents, and
- lack of people empowerment

The marine and other natural resources have been degraded because of the high rate of use, high population growth, destructive fishing practices, and poor enforcement of fishery laws and regulations.



The women of Malalison have much to discuss and to team from each other. While waiting for their turn to fill up jugs of drinking water, they share news and views about their families, community, and AQD's CFRM project. Eva Aldon and Julie Lagoc (with caps in front) talked to them.

The women also notes that water supply is insufficient in their baranggay, *especially from March to June. They need an additional deep-well for washing.*

The direct causes of the high population growth are the low educational attainment of household heads, the religious prohibition against artificial birth control, the lack of recreational facilities in the island, and the tendency to view children as workers, caregivers, or insurance against adversity.

Lack of alternative livelihood is another direct cause of poverty in Malalison. Residents lack education, skills, information, and technology. Lack of credit prevents or limits other economic activities. The inability to access the market for non-traditional products, e.g., shellcraft has prevented the community from pursuing some alternative livelihood.

Low educational attainment limits the ability of the Malalison fisherfolk to understand and properly use their resources, do business, learn new skills, get what they want, and rise above poverty. The children are unable to go to school because of lack of funds and educational facilities on the island, and because many parents undervalue education.

The passive posture of the fisherfolk in managing the coastal waters is due to the 'top-down' strategy of policy formulation and implementation. The fisherfolk are not educated about their natural resources and are not trained in local governance and policy advocacy.

But things have started to change.

The Local Government Code of 1991 includes the policy delegating the local government units and people's organizations to man-

☞ *p. 25*

Policing fisheries

Ex-*Baranggay Captain* **Romeo Macuja** reminisced about the island's progress. "I practically saw the growth of Malalison. I was *kagawad* (councilman) for 20 years and *barangay captain* for 12 years.' Illegal fishing had been the main problem. Fishermen blow up schools of fish using dynamite and fish by *muro-ami,* pounding the corals to destruction.

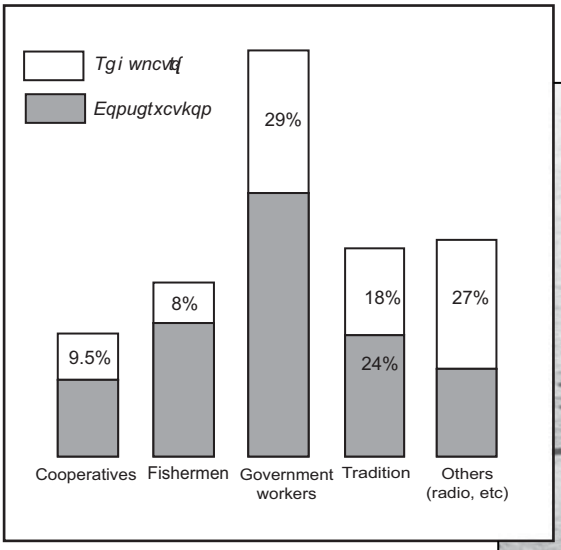
Romeo has fought the war on illegal fishing. "I was imprisoned for 17 months because of unlicensed firearm, but I was able to snuff the life out of an illegal fisher — in self-defense. I was wounded also. I drove them away in a one-hour chase by pumpboat. Their destruction of our *dunang* manggad (natural resources) will affect all of us in Malalison."

According to the CFRM project report, lack of alternative income sources during the off-season has forced fishers to use efficient but destructive fishing methods to maximize the catch during the peak season. Blast fishing was rampant during the 1980s until the initiator and source of dynamite died in 1991. Malalison fishers now allege that fishers from other islands and provinces do blast and cyanide fishing around the island. The Malalison version of the *muro*-am/(locally called *duldog),* introduced by Japanese fishermen before World War II, became a source of conflict both within and outside the island. *Duldog* has been prohibited since 1986, but the ban has been commonly ignored. Overfishing and destructive fishing practices have degraded the marine resources, particularly the coral reefs around the island.

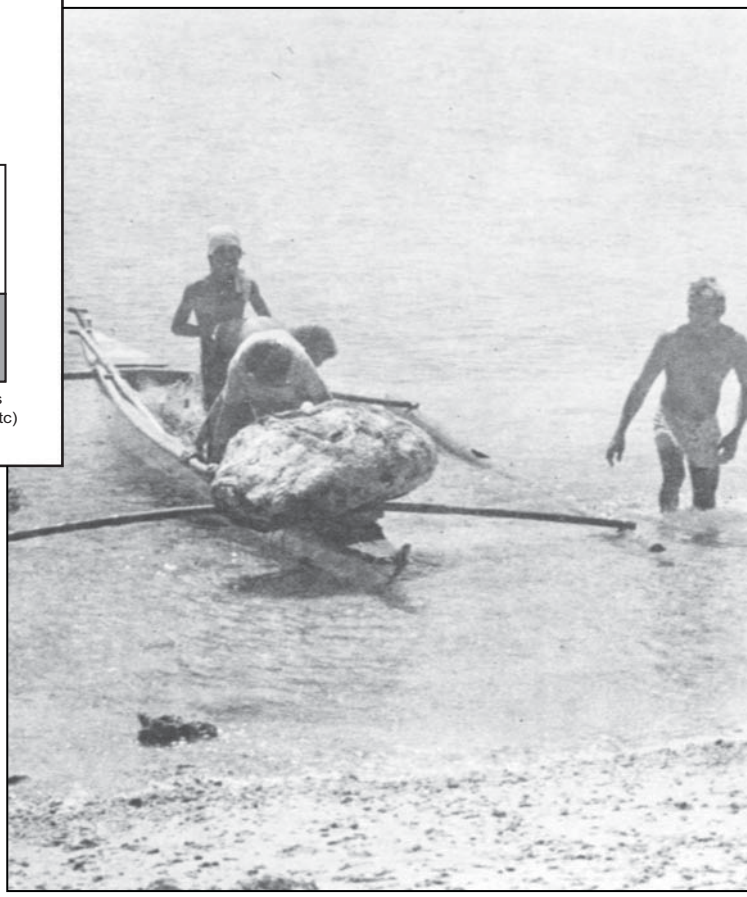
Policing fisheries is mainly covered by a presidential decree (PD 704) in 1975, and the various fisheries administrative orders (FAO) that were based on the decree's basic principles. A bill updating fishery laws and regulations is pending in both houses of the Philippine congress. But as it stands now, PD 704 and its FAOs provide for the following:

- ✗ registration of all fishing boats
- ✗ licensing of all fishermen
- ✗ obliging fishermen to record catch data
- ✗ delineating the areas where commercial and municipal fishermen may fish
- ✗ prohibiting the trade of corals, the gathering of endangered mollusks like the trumpet and helmet shells
- ✗ disallowing the catch and trade of dolphins, milkfish breeders from the wild
- ✗ specifying closed seasons for sardines, herrings, and mackerel
- ✗ specifying minimum size catch for molluscs like window-pane shell
- ✗ banning fishing in several areas like Manila Bay
- ✗ restricting fishing using trawl, purse seine, hulbot-hulbot, ring net, driftnet, the use of fine-meshed nets
- ✗ banning the use of muro-ami, its local "small" version, explosives, and obnoxious or poisonous substances
- ✗ regulating aquaculture
- ✗ controlling exports and imports
- ✗ prohibiting the dumping of pollutants into rivers, lakes, and seas
- ✗ others

The country's coastal resources are seen to be better protected if the new fisheries code comes in effect. For one, the law provides for the creation of a Department of Fisheries that would field fisheries officers to all corners of the country. These officers will hopefully become the sources of information on regulatory and conservation education. A SEAFDEC study in 1995 found that fishermen get information basically from government workers, followed by other fishermen, community tradition, mass media like radio, and cooperatives (see chart next page).



Sources of information on regulatory and conservation education. Fishermen get most of their information from government sources **(permission must be sought from D. Baticados of SEAFDEC before citing this data).**



Perhaps the best policing tool is TURF or the territorial-use rights in fisheries (as discussed by Dr. Lacanilao on pages 2-6, this issue). Prior to the implementation of the CFRM project in Malalison, AQD surveyed the acceptability of TURF in five coastal villages in Panay which were the candidate sites for the CFRM project in 1991. AQD researcher Susan Siar reported that 45% of the over 200 respondents believed that the people in their village owned the coastal resources, 94% held the opinion that the people have the right to utilize these resources, and almost half (49%) identified the government as responsible for managing them. The respondents also voted overwhelmingly in favor of their association's right to establish rules and regulations (82%), the positive benefits of TURFs (85%), their cooperation (90%) and the cooperation of others (63%) in regulating fishing activity. Siar concluded that the present predicament of low catch and poor livelihood provides just the rationale for CFRM.

The Culasi municipal council has already granted a 1-km^2 TURF area between Malalison Island and mainland Culasi (see preceding article).

"SEAFDEC is good," Romeo tells Editor Julie Lagoc. "1 hope they'll teach us hatchery and nursery techniques, for example, of siganids." He is fishing less these days, having found an alternative source of income. "1 earn by selling recycled bottles. 1 sell *lapad,* long neck, catsup, silver swan, etc. 1 make about P1,000 everytime I ship this to the city. Some of us in the *barangay* are into hog-fattening."

"Fishing is not enough for my big family," stresses Romeo who has eight children. The eldest, 23, is recently married and has one child.

Living the alternatives

PROCESS Foundation completes the tripartite partnership with SEAFDEC/AQD and FAMI in the CFRM project at Malalison. Its aim is to facilitate the formation of a strong and empowered people's organization and build their capabilities for a participatory and self-reliant development.

The Malalison residents have started applying the lessons they learned from seminars and training sessions PROCESS facilitated for them in the past. One community project is revitalizing a consumer store (locally known as a *sari-sari* store).

Storekeeper Teresa Santiago says: "We have more than 50 members that put up a capital of P100 each. We sell cooking oil, sugar, snack food, and cigarettes. Sales ranges from P400-600 a day. We have the same prices for both members and non-members. Our prices are lower than the eight other *sari-sari stores* in the island. Our source of merchandise is the *Kooperatiba* (the government cooperative) in mainland Culasi. We have 100% active members. Our target for 1996 is to get 20 more."

AQD scientist Rene Agbayani notes: "Management of this enterprise, particularly of the finances, is much improved." So far there has been no profit-sharing. Whatever little profit is realized is being plowed back to the capital. Teresa's husband Narciso, who is also the president of FAMI, acts as bookkeeper.

The Consumers' Store serves as a training ground for simple management to its members, in addition to teaching them the value of cooperativism.

Before the end of 1997, PROCESS hopes to facilitate more training on:

- community youth organizing and formation program
- women's capability building seminar
- social credit management seminar
- fisherfolk development project training
- ecology and gender-sensitive project development and management training
- health awareness building
- paralegal training with focus on lobbying, advocacy, and local governance
- cooperative development training (part 2)
- exposure programs

The CFRM team formulated a logical framework of the interventions under CFRM (chart next page). Foremost was the social preparation through community organizing and institution building to empower the fisherfolk. The community is encouraged to lobby for territorial use rights in fisheries (TURFs). Seafarming and other livelihood are being introduced to improve incomes and lessen the pressure off wild fisheries. Artificial reefs are being deployed also to improve fisheries.

FAMI cooperated with SEAFDEC/AQD researchers in culture trials with the seaweed *Kappaphycus.* Seaweed farming was generally successful in terms of production, profit, and FAMI management. Unfortunately, profits from the initial trials went down the drain along with the capital when typhoon Rufing swept the island in 1993. Having seen the promise of seaweed culture, however, FAMI members remain undaunted. They plan to borrow from the LandBank for another try at *Kappaphycus* culture. They hope the weather would cooperate the next time around.

[AQD has another farmer participatory research on mussel, seaweeds, oysters, and siganid culture. This is being conducted by AQD researcher Kaylin Corre in Dumangas, north of Iloilo City, to develop appropriate and affordable culture methods. The CFRM team hopes to teach these methods to FAMI as alternative livelihood.]

"We are indeed progressing slowly but surely," says Teresa. But PROCESS still aims to increase active involvement of FAMI officers and

PROCESS Foundation played a hand in organizing the fishermen's association in the Island, the FAMI, and conducted capability training for members. Pretty soon, FAMI revitalized a consumer store for island residents, and invested in seaweed farming. Storekeeper Teresa Santiago talked to Editor Julie Lagoc.

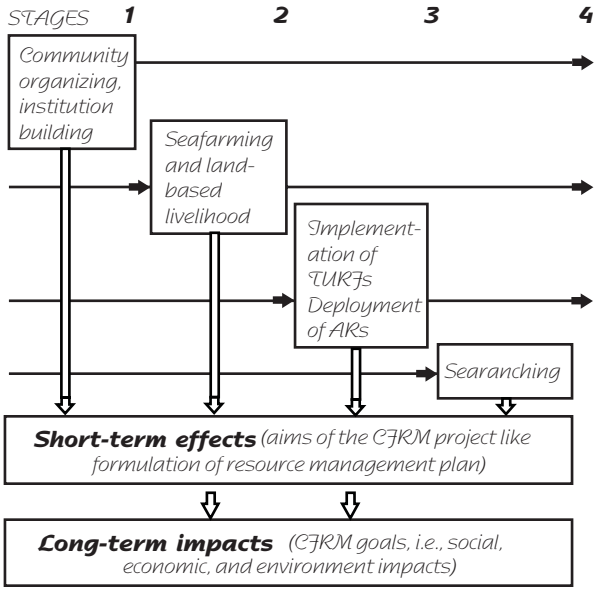
members to 85% in terms of decision-making, planning, and implementation of activities. In addition, at least 60% of the members will have 10-20% increase in income for one year. For those extended credit, 60% can pay amortizations diligently. Further, at least 40% of women will handle sensitive positions in FAMI; 60% of youth involved in its organizational activities; and 15 leaders have exposure trips. At least 25 households will have their own culture projects. Other targets of PROCESS include better land-use, more legislation, better access to information and technology, and better access to grants or loans from other NGOs, GOs, and LGUs.

How fare the other households in the island that are non-FAMI members? Some of them are adopting a wait-and-see stance. An exceptional few are already "rich" and "successful" by island standards. AFN interviewer Eva Aldon talked to one successful couple:

"Fishing, our means of livelihood, gave our children a college education," says Roberto Doroteo. His wife Maura sat beside him. "Jessie is a maritime academy graduate and he is an engineer in an international cargo ship. Tessie

☞ p. 25

Logical framework of the developmental interventions under CFRM in Malalison



Playing for keeps

Once there was a fisherman who unintentionally caught a fish that pleaded to be thrown back into the sea, which the fisherman dutifully did. Years later, this man was caught in a storm at sea and found himself thrown into turbulent waters. Just as he was at the point of drowning, there came floating in his direction what he thought was a log. To his utter surprise, this turned out to be a school of fish of the species he had saved. They were grouped into a raft-like structure on which the man clambered and which brought him safely to shore.

This is a popular lore told in practically all coastal villages of western Visayas, as noted by (the late) Dean Lourdes de Castro of the University of the Philippines in the Visayas. The lore is an important lesson of preservation. Symbolically, the tale tells us that if man shows kindness to marine life, he will be rewarded in the end. There will always be fish to save him from destruction, food to save him from hunger.

Angela Doroteo, age 12, practically lives this fact. Like her Grade V classmates at the Malalison Primary School, she helps her family fish when not at school. They drop set nets during high tide and gather fish caught in the nets during low tide. They also use hook-and-line. They are expert on searching for edible shells on the beach. Angela figured that six people can catch as much as 50 kilos of fish.

"I have five brothers and three sisters. I am the sixth child," Angela said. "Fishing with friends is fun, but I want to be a nurse and work in Culasi or maybe abroad."

She has a few precious role models. The educational attainment of the households in Malalison is very low according to the 1991 SEAFDEC/AQD survey. About 72% reached various grades in elementary school, 15% had two years secondary education, and 5% had three years of college. Of the two college graduates, one is the incumbent village head. Angela's dream, nursing, is a four-year baccalaureate course in the Philippines.

Malalison Island has one school building for the primary grades (I to IV), and one day-care center. The classes in Grades I and II share a room and a teacher, and Grades III and IV another room and teacher. Grade V just opened this schoolyear. Each teacher spends the first few minutes of class time in the lower grade, gives the pupils seat work then attends to the higher grade, gives another seat work, then turn her attention back to the lower grade. And on and on. The school plans to open a Grade VI class to enable the pupils to complete their elementary school in the island. Angela need not go to Culasi, a 20-minute motorboat commute, next schoolyear.

"But 1 will be staying in Culasi when I go to high school," Angela said with some excitement. "I want to experience life outside the island. I have not been anywhere, not to Iloilo City, not to Manila. In Culasi, my parents will probably arrange for me to stay in a lodging house owned by my family's friends which would cost P20 per month. 1 will be home weekends." But she has many reasons to like Malalison. That it has many fish topped her list. "Nothing beats the delicious *dalagang bukid."*

Angela and her classmates have five basic subjects in class: Math, Science and Health, English, Filipino, and *Sibika at Kultura* (Civics and Culture). They also have classes in G.M.R.C. or Good Manners and Right Conduct and P.E. or Physical Education. "Filipino is my favorite because it is easy," Angela said. "However, conservation which is important to our community is taught in *Sibika* and Science. 1 have gone with my brothers and sisters to plant *talisay* trees. Trees prevent floods. Dynamites and cyanide are also bad methods to use in fishing. They kill all the fish, including the small ones."

Angela is a consistent honor student. She topped her Grade III and IV classes. "I was happy to receive the honor ribbons," said she. Her family celebrated over *linugaw na manok* (chicken-rice soup). "And softdrinks," she added.

Editor Mila Castaños talked to Angela (with headband) with a friendly and curious crowd in attendance. For these kids, there is a time for work (helping a father roll the net) and for play (a game they call maligaya *where they link legs, sing a song and limp around with the first to fall losing).*

Angela's typical day on the island starts at 5:30. She takes care of watering the flower garden, helps prepare her family's breakfast, feeds the hog they are fattening to sell later on, and goes off to school at 7:30 until about 4:00 in the afternoon. She and her friends then fish if the tide is right, or play various games they invented on their own. The family dog Arge goes everywhere with her. She did attend bible studies but then the teacher went to America to seek her fortune as a domestic helper.

Even as young as she is, Angela has already thought about marriage. "I know I do not want to marry early or have plenty of children," she explained. "Life in the island is hard."

But when SEAFDEC implemented its CFRM project, things started to look up. "They took a lot of pictures," she said, referring to the CFRM researchers.

☞ *p.21*

Learning for keeps

Florena Sultan, the Grades I and II teacher in Malalison, wrote a list of English language exercises on the board, starting with: *What does this picture tell* us? She drew a sun, a cloud, and listed three choices: *(a) it's a rainy day, (b) it's a cloudy day, (c) it's a sunny day.* What is the answer? Florena asks. Her pupils shouted in unison: "Beeee!!!" The classes in Malalison always start rather enthusiastically.

Florena has 42 pupils in all (28 in Grade I and 14 in Grade II). Her target at the end of the schoolyear is 75% level of proficiency for her pupils in all subject areas, including English, Mathematics, *Sibika at Kultura* (*Civics and* Culture), Filipino, Science and Health. This target has been set by the Department of Education, Culture and Sports (DECS), the government body that fields teachers in public schools.

In a test given at the start of the 1995-1996 schoolyear, Florena noted these results:

Subject area	****Number of pupils who achieved 75%***	
	Grade I	*Grade II*
English	6	2
Math	3	2
Sibika at Kultura	3	3
Filipino	3	5
Science and Health	2	0

***DECS standardized 20-item test.**

It means that at the end of the year, at least 20 of her 28 Grade I and 10 of her 14 Grade II pupils have to get 75% of the same test given at the start of the year.

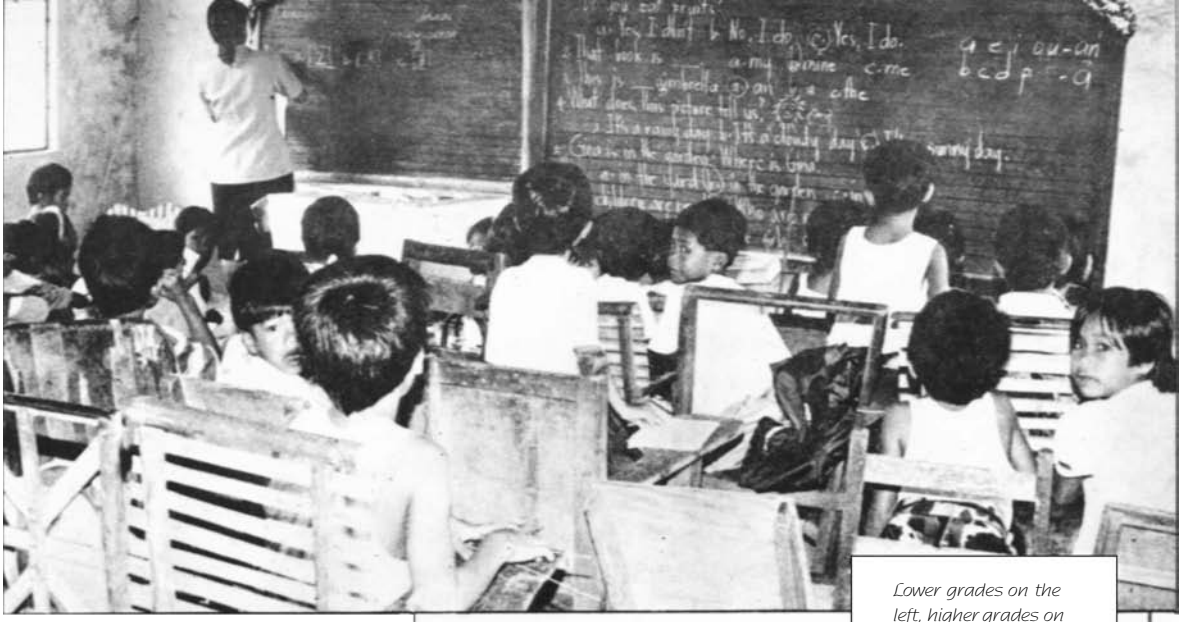
"This is a tough goal," Florena tells Editor Mila Castaños. "I am the children's only teacher, and their parents are much too busy making both ends meet to sit down with them and help in their homeworks."

But Florena's classes are not so bad in nutritional indicators. Of the Grade I pupils, 23 have normal heights, 5 are shorter than normal; 18 have normal weights, 4 are on the borderline, and 6 are underweight. For the Grade II class, 13 have normal heights, 1 is shorter than normal; 8 have normal weights, 5 borderline, and 1 underweight. The Filipino diet usually consists of rice, fish, and some vegetables raised in the backyard garden.

Malalison has hardly any alternative source of information for children to enjoy either. The island does not have electricity, and there are no TV sets. The teachers can not take advantage of an educational program aired by a Manila-based media company or cable TV's *Discovery* channel. Culasi has no community paper. "The children are missing a lot of things," Florena said. "Children in well-funded schools achieve 70% more than children in poorly equipped schools. My biggest problem is comprehension." But that day of the interview, one student got the perfect score of six and the majority scored four in their English language seatwork.

"In our science class, we use the plants and animals around the school. The children draw these, identify them, and label the parts. They learn about habitats, and the needs of living things. The two classes usually combine their field exercises. However, we lack even the most basic equipment in our science class like a magnifying lens," Florena explained. "In *Sibika at Kultura,* the children learn about human interactions and conservation concepts. They are taught to take care of plants, not to step on or mutilate these."

The good news from SEAFDEC/AQD is the proposal for an environmental education program in the island. The target audience is women and children. The proposed program will tackle coastal and inland ecology, coral reefs, and environmental impact of human population growth. Multi-media instructional materials such as comic books, posters, and slide-tape programs will be produced for the island. Like the



Lower grades on the left, higher grades on the right. The school building (right) is in front of the basketball court: the other building is the day-care center.

CFRM project, SEAFDEC/AQD hopes to duplicate the pilot environmental education program in other coastal communities.

For Florena, 32, "patience is probably the most important virtue of teachers handling the lower grades." She holds an AB English from the West Visayas State University (Iloilo City) and a Bachelor's degree in Elementary Education from Aklan College. "If the children can learn that their future depends on how they take care of their resources, that is enough for me."

From the American Norman Schwarzkoph are these thoughts.

A man needs to know how to catch a fish. Fishing teaches you a multitude of skills, like patience and compassion. It teaches you about the beauty of nature. It teaches you the art of the chase, which comes in handy when you're a young bachelor. It teaches you knot-tying, because if you don't know how to tie a good knot, you're not going to catch a good fish. It teaches you seductiveness, because only through the selection of the correct lure or fly can you appeal to the fish's predatory nature. A good fisherman actually uses a fish's own nature against him - not a bad technique to use in business.

Angela ... *from page 19*

"It's more fun in the island now, more parties, more programs, more dancing, more singing. I also know that the grown-ups have planted seaweeds and installed artificial reefs. They did this to earn more money and to bring back the fish lost through the use of dynamites and cyanide."

If Angela seems to be older than her 12 years, it is because life in the island has not been easy. She knows too well that kids on the island play for keeps.

Looking ahead

FAMI president **Narciso Santiago** talked to Editor Julie Lagoc about their association's future plans: "We want to make money this year. I was with the group that went on a field visit to Apo Island. Apo has only one reef. Here at Malalison we have six: Guiob, Nablag, Layag-layag, Balabago, Nadong and Salangan. That's a wide area for ecotourism. Our association can earn in the sale of souvenir t-shirts, sea shells and ornamental or tropical fish. We hope to build one or two cottages for visitors." Apo is a marine sanctuary in central Philippines, and a popular tourist destination.

Here's how Malalison compares with some reefs in the Philippines according to coral cover (in %), yield (tons per km^2 per year), and management scheme (compiled by AQD researcher Edgar Amar based on published literature):

Reef	*Coral cover*	*Yield*	*Management*
Malalison	35	5.8	Open access
Hulao-hulao	27	5.0	Open access
Apo	64	31.8	Community-managed marine reserve
Pamilacan	17	10.7	Open access
Selinog	29	5.9	Open access
Sumilon	>50	37.0	Community-managed marine reserve

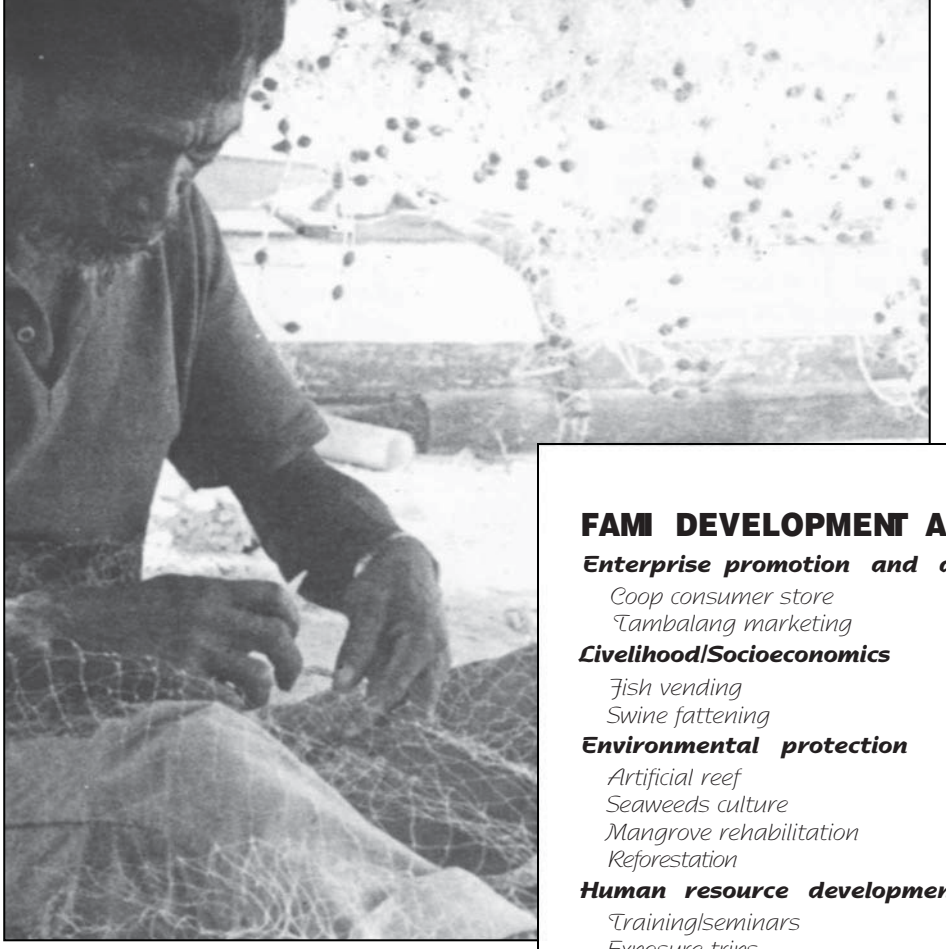
Prior to declaring Guiob as a fish sanctuary, FAMI together with SEAFDEC test-deployed prototype concrete artificial reefs (ARs) two years ago. The group wanted to test the technical feasibility in terms of design, strength, and deployment with local labor. Full deployment of concrete ARs was done at selected sites last year, taking into consideration the biophysical characteristics and the socioeconomic effects on the resource users. FAMI was consulted on the water current, underwater topography, and substrate. Their information supplemented the data gathered by the CFRM staff who made a hydrographic survey and actual dives to determine the AR site.

According to Daniel Bauer of the University of Hawaii, ARs have three functions:

- as a fish-aggregating device that concentrates fish for easier fishing
- as protection or shelter for fish juveniles preventing their early harvest, and
- as a means to increase coastal productivity in the long run by providing substrates for growth of sessile organisms and establishment of new food chains

FAMI and AQD avoided ARs made of tires or bamboo modules because these only serve as fish-aggregating devices which encourage overfishing. Also, tires release toxic chemicals, bamboos easily deteriorate, and both are unstable for habitat development and ultimately end up littering the ocean floor. Thailand abandoned the use of tires in its four-year (1988-91) coastal enhancement program and adopted concrete modules instead. Recruitment of organisms on concrete ARs also resembled more closely that of natural surfaces (like dead coral). Concrete is therefore the best material for ARs.

AQD's Reynaldo Tenedero, the civil engineer in the multidisciplinary CFRM team, says that the AR deployed in Malalison is made of steel-reinforced concrete fabricated in segments at least 1.47 kilo newton per block to avoid the use of heavy lifting and transport equipment. The exposed side of the ARs were roughened to allow a diversity of organisms to settle. Engr. Tenedero says three types of reef units were fabricated: 16 units of building block type, 15 units of concrete pipe culverts, and 30 units of modified concrete pipe culverts. The first unit was fabricated by FAMI members; the last two made-to-order at Culasi. Fabrication costs P3,600-4,600 and deployment around P1,000 per unit type. FAMI gave a counter part of P5,000



to cover deployment. The amount was taken from the village internal revenue allotment fund.

"Deployment was hard work," says one FAMI member, "but it also meant doing something for our future." FAMI helped haul the ARs from the fabrication site to the bamboo raft that would bring the units to the deployment site. A motorized banca towed the bamboo raft. Upon reaching the site, the bancas were anchored to the previously installed surface buoys, which also served as markers for the exact location of ARs. The ARs were tied with ropes, and lowered manually one at a time.

"We had SCUBA gear," recounts a fisher, "and we assembled the modules in pre-designated areas. But the ARs landed far from the marked area when first lowered from the boat, so we have to haul each block underwater and assemble them in their exact location." That day, the water

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FAMI DEVELOPMENT AGENDA

Enterprise promotion and development

- Coop consumer store
- Tambalang marketing

Livelihood/Socioeconomics

- Fish vending
- Swine fattening

Environmental protection

- Artificial reef
- Seaweeds culture
- Mangrove rehabilitation
- Reforestation

Human resource development

- Training/seminars
- Exposure trips
- Conferences

Women in development

- Gender sensitivity/women's rights
- Women's Projects

Local governance

- Representation in local development council or (local) Sangguniang Bayan
- Recognized as partner by LGUs
- General assemblies

Networking and alliance building

- KMMSA
- VJSFFAC
- Women's POs
- SEAFDEC
- NGOs/POs/GOs
- Funding

Health and family planning

- Health program
- Cleanliness/sanitation
- Water facilities
- Family wellness

was clear, and progress could be easily seen from the waterline.

The fisherfolk were grouped into two teams, each with 6-8 persons. They loaded the reef types in 1 -2 hours, transported these from the shore to the site in 10-45 minutes, and finally assembled the ARs underwater (each unit took 3-4 hours). Each team set up at least 2-3 reef units per day, deploying a total of 25 reef units in 10 days.

A total of 3 AR types, each consisting of 9 reef units have been deployed at the Guiob reef. The ARs cover an area of less than 1 hectare. Since Guiob reef has been declared a fish sanctuary, fishing is banned. The fisherfolk have accepted the concept of a fish sanctuary to ensure the productivity of their fishing ground. FAMI and the local government of Malalison will have no difficulty enforcing the fishery laws.

"I was elected FAMI president in 1991," Narciso said. "We have our constitution and by-laws all laid out, and my fellow officers were all looking forward to a better life. But things were slow to pick up. And there was always the call of greener pastures. I left Malalison and worked in Manila for three years as a private detective. Having saved a little, I came back and was re-elected FAMI president in January 1996. How things have leaped! The ARs are deployed and now we have a fish sanctuary to ensure productiveness of our fishing ground. And plans are being pushed for our island becoming a tourist site. CFRM is making our future bright." FAMI's development agenda are mounted on the wall of AQD's field office-laboratory for all to see (see previous page). The agenda has been agreed upon by FAMI, PROCESS Foundation, and AQD.

The CFRM project will continue the capacity-building activities of FAMI members during the next three years. Needs assessment by the FAMI members will guide the types of training activities to be undertaken. The sustainability of the community-based approach to coastal resource management will depend largely on the capacity of the fisherfolk organization to implement the provisions of the resource management plan. The supportive roles of government, non-government institutions, and other stakeholders as co-managers of the resource will greatly influence the success of community-based resource management.

The faces of Malalison - 2

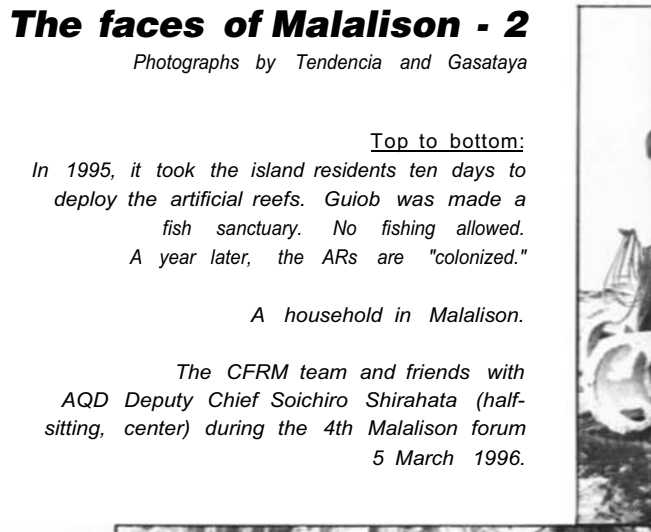
Photographs by Tendencia and Gasataya

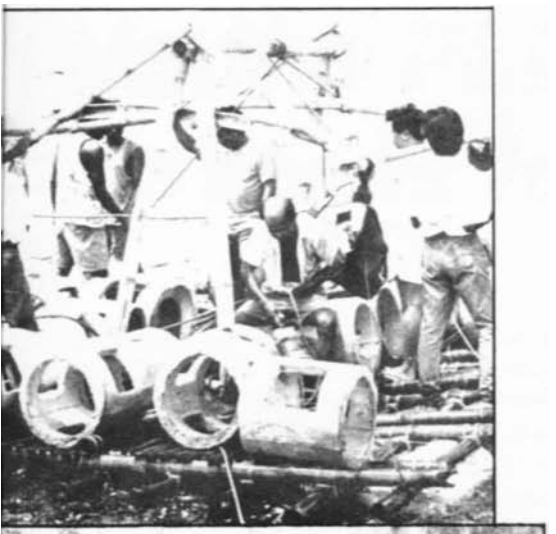
Top to bottom:

In 1995, it took the island residents ten days to deploy the artificial reefs. Guiob was made a fish sanctuary. No fishing allowed. A year later, the ARs are "colonized."

A household in Malalison.

The CFRM team and friends with AQD Deputy Chief Soichiro Shirahata (half-sitting, center) during the 4th Malalison forum 5 March 1996.





Patricia: our waters... *from page 13*

age their own resources. It notes that *municipalities have the exclusive authority to grant fishery privileges in the municipal waters (15 km from the coastline) and impose rentals, fees, or charges*

The Culasi Sangguniang Bayan (or municipal council) already passed an ordinance designating a 1 km^2 area between Malalison and Culasi as a TURFs area. Effective implementation of TURFs will help ease the fishing pressure and ultimately increase the catch and income of individual fishers, if not the total for all fishers.

"Our waters, our rights," says Patricia with finality.

Teresa: alternatives... *page 17*

finished a medical secretarial course, and is a *mċ cycf* (councilor) in Culasi. Lucy holds a bachelor's degree in commerce and works with a telephone company in Manila. Helen is a midwife in Culasi, and the youngest is a dentist in Manila."

"How did we manage?," Maura repeated, "Work, work, and more work. But of course we thank the Lord Almighty for the bountiful fish in the island and the interest of our children to improve their lives. The abundance of fish is a big factor, for no matter how hardworking you are, if there is no fish to catch, your efforts are worthless. In the same way, if our children did not want to study, our dreams for them to become professionals would not have come true.

"Now our children do not have to work as hard as we, their parents, did and still do. Fishing is very tiring. You have to be in the water during the time when people get their best sleep and have their nicest dreams. But our children value fishing because it is what made them what they are now."

Berting and Mauring are not members of FAMI. "But if the reefs surrrounding Malalison are 'rebuilt', as what AQD's CFRM project hopes to do, then all of us in the island benefits, even non-FAMI members," they said. "We are all fishers, and we depend on one resource."